

FIG.1

Atmospheric environment Zone	I		II		III		IV		V	
	Measured value	Evaluation point	Measured value	Evaluation point	Measured value	Evaluation point	Measured value	Evaluation point	Measured value	Evaluation point
Environmental factors	A	1	≤25	2	≤30	4	≤35	8	>35	12
	B	1	≤65	6	≤70	12	≤80	24	>80	36
Temperature(°C)										
Relative humidity (%RH)										
Corrosive gas (mdd)	SO <sub>3</sub>	1	≤0.05	4	≤0.2	8	≤0.5	16	>0.5	24
	SO <sub>2</sub>	1	≤0.05	6	≤0.2	12	≤0.5	24	>0.5	36
	H <sub>2</sub> S	1	≤0.05	3	≤0.2	6	≤0.5	12	>0.5	18
	NO <sub>2</sub>	1	≤0.05	7	≤0.2	14	≤0.5	28	>0.5	42
	Cl <sup>-</sup>	1	≤0.1	3	≤1.0	6	≤10	12	>10	18
Sea salt particle (mdd)	NH <sub>3</sub>	1	≤0.03	5	≤0.1	10	≤0.3	20	>0.3	30
	Sea salt particle (mdd)	1								
Distance from coast (km)	D		≥1.5		≥1.0		≥0.5		<0.5	

FIG.2

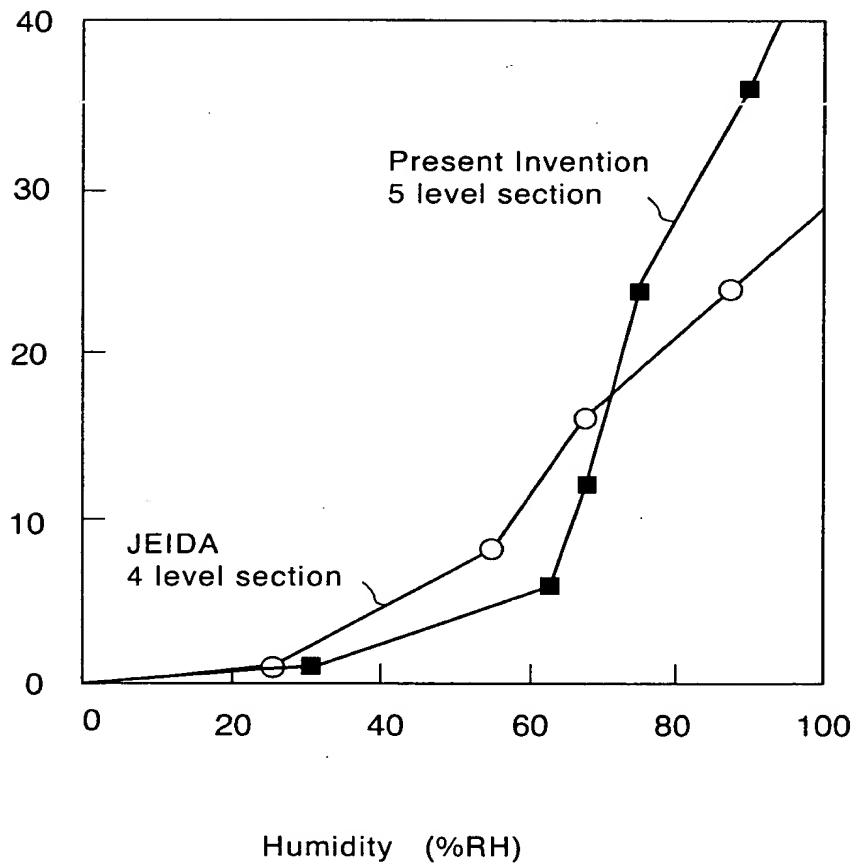


FIG.3

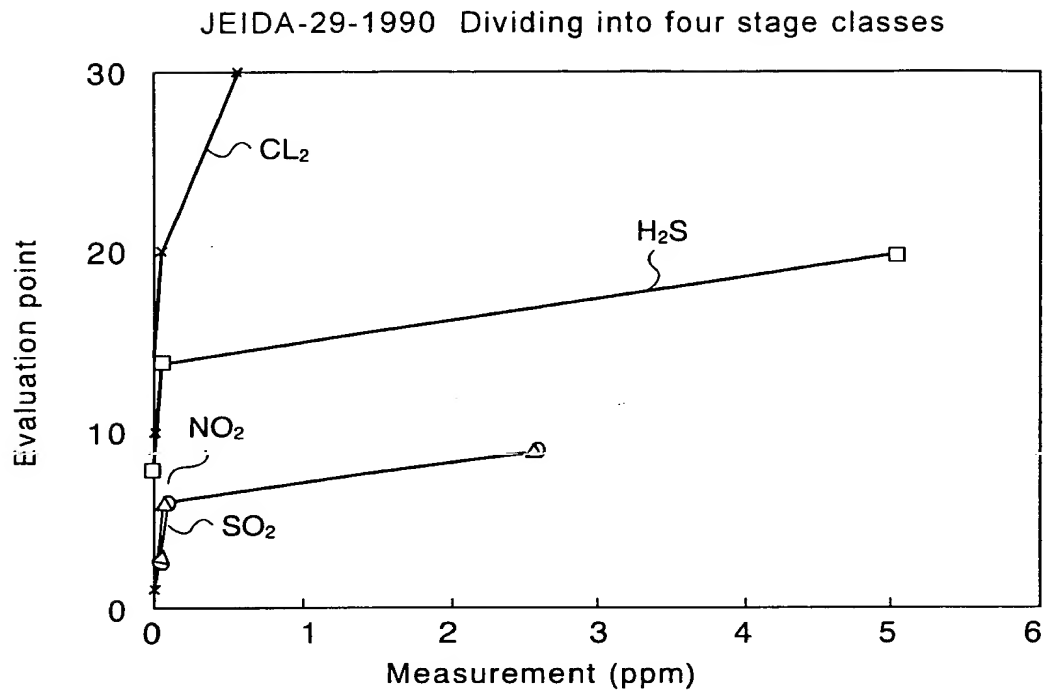


FIG.4A

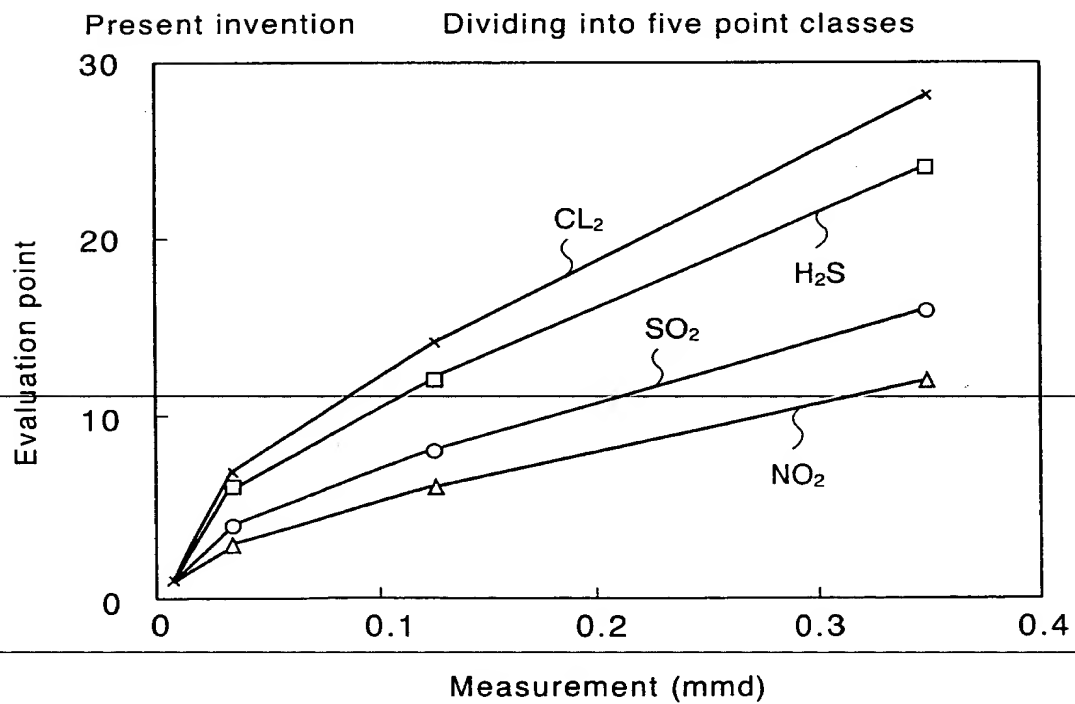


FIG.4B

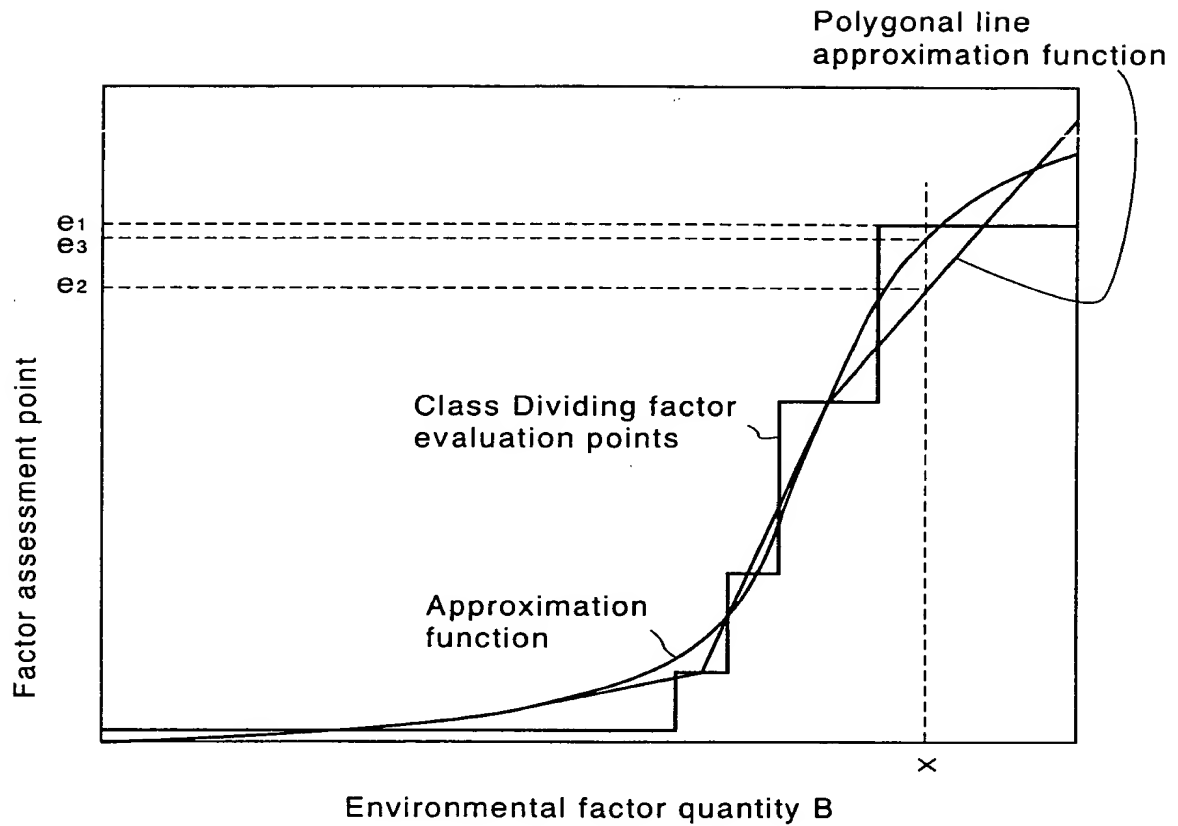
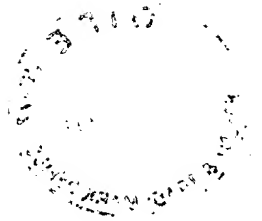


FIG.5

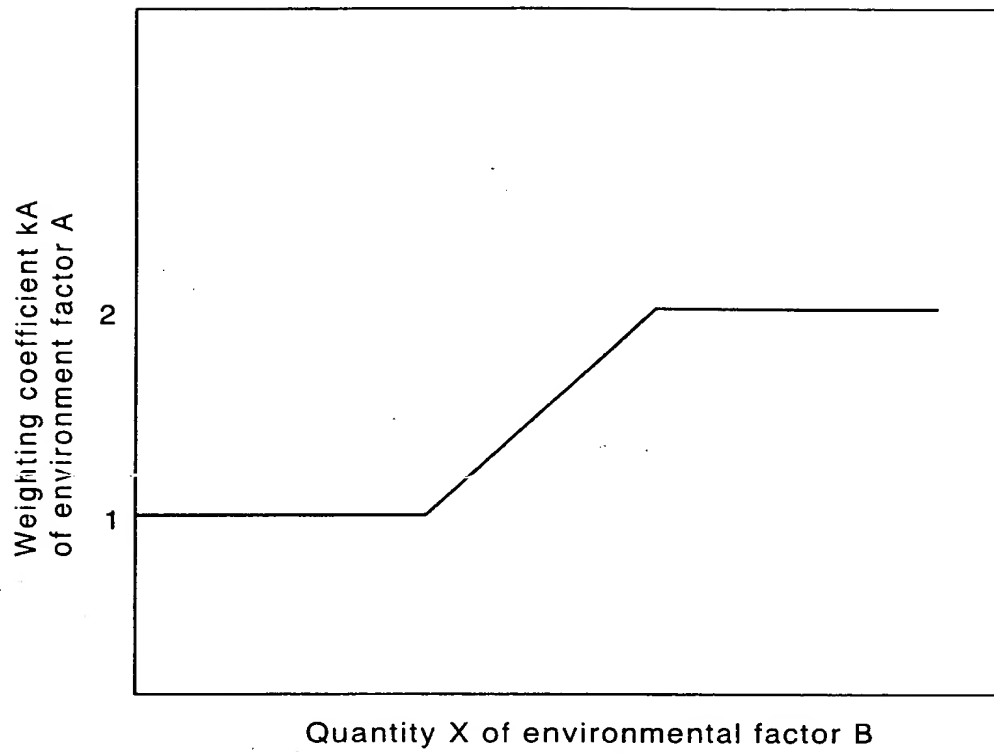


FIG.6

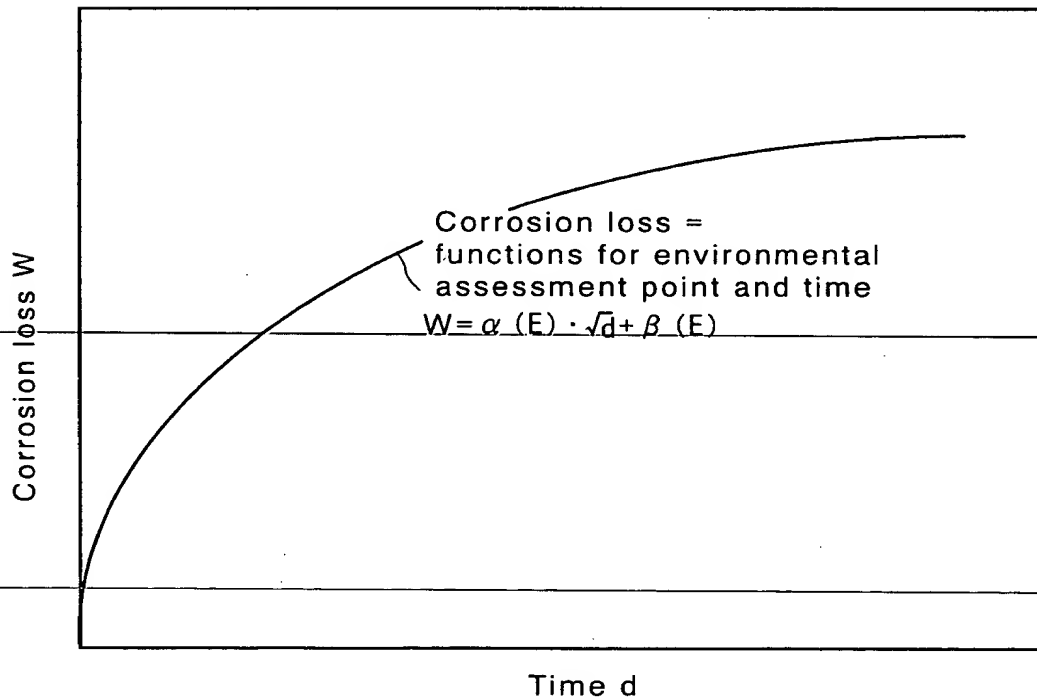


FIG.7

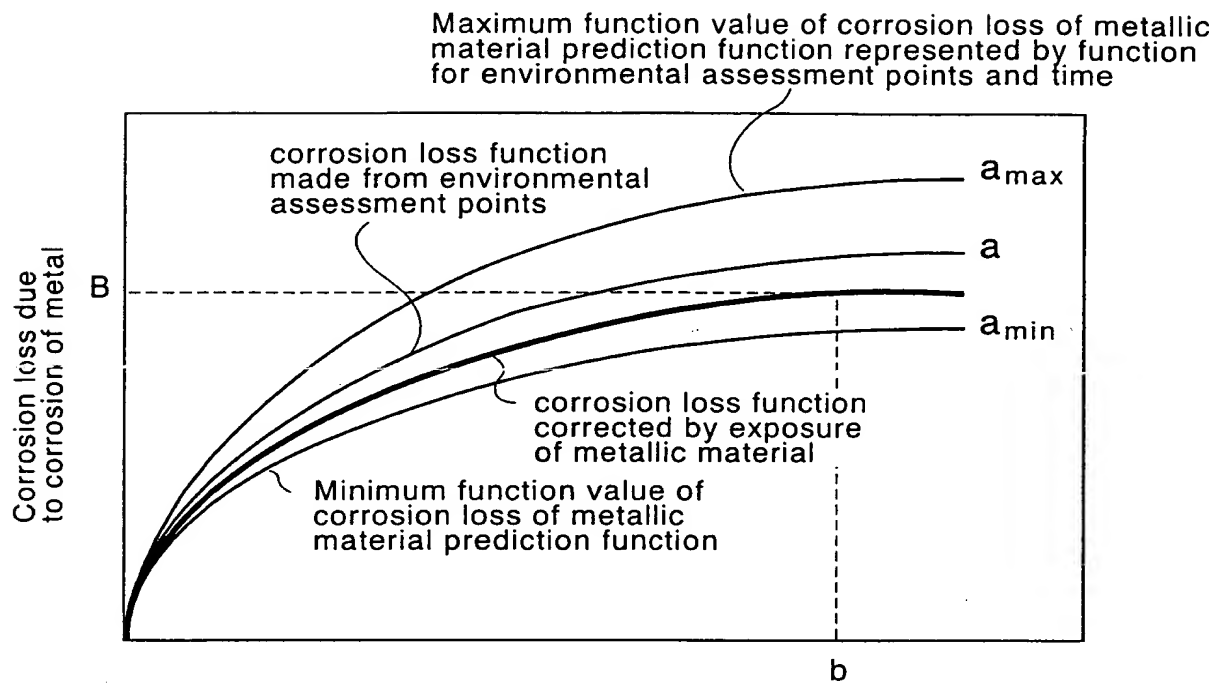


FIG.8

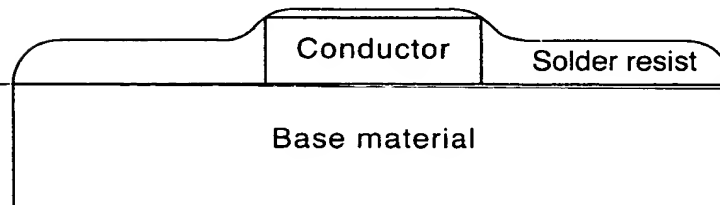
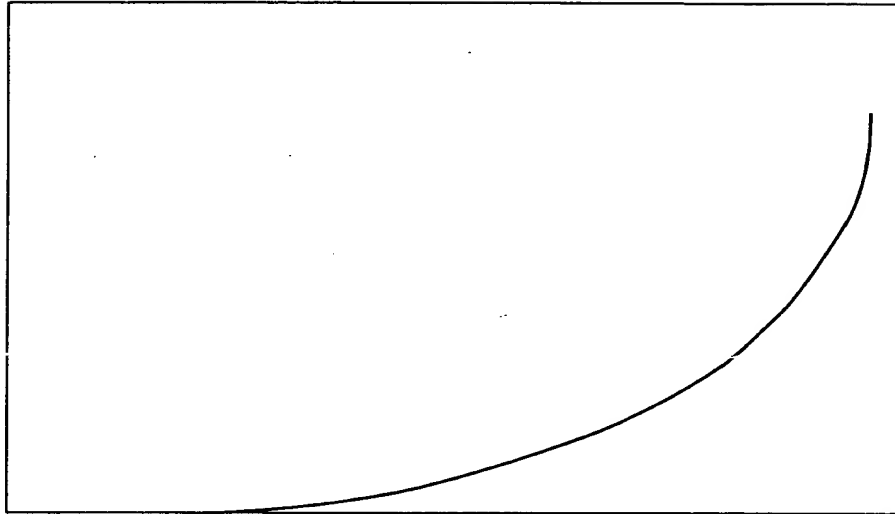


FIG.9

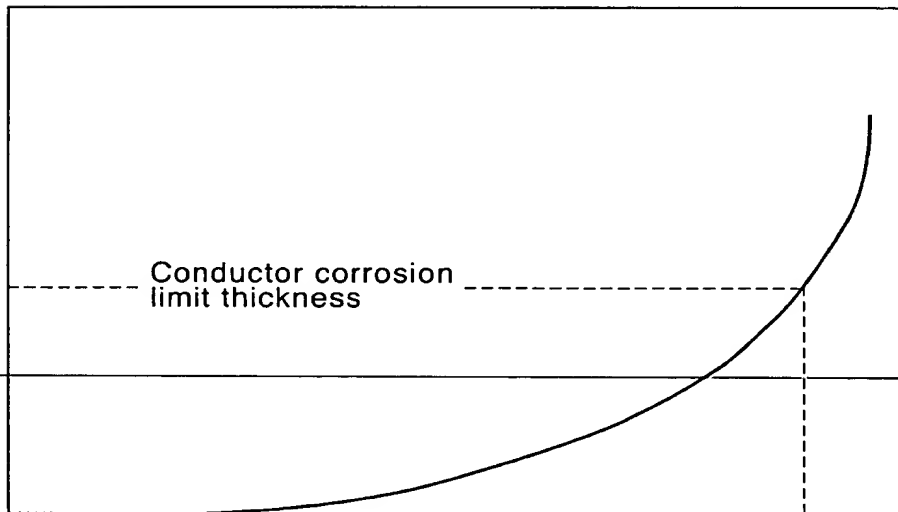
Thickness of corrosion of a conductor



Amount of corroded copper

FIG.10A

Thickness of corrosion of a conductor

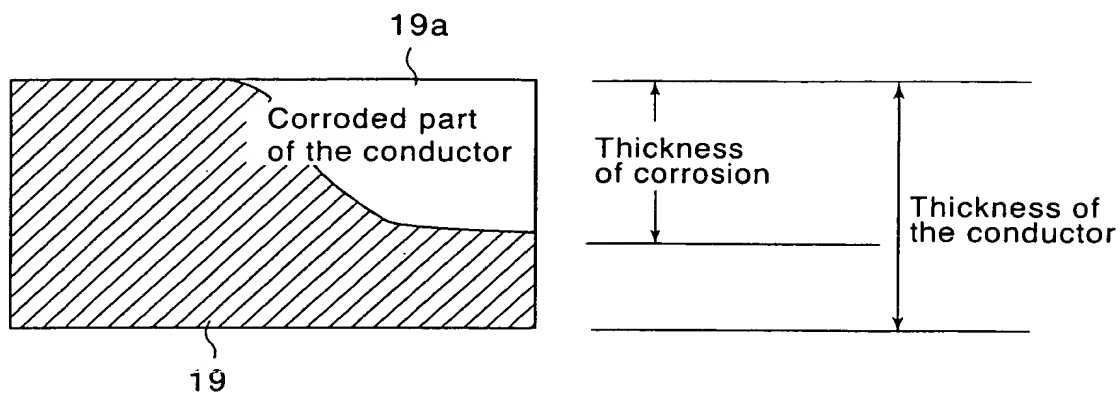


Amount of corroded copper

Limit for an amount of corrosion

FIG.10B





$$\text{Corrosion loss rate} = (\text{thickness of corrosion} / \text{thickness of the conductor}) \times 100$$

FIG.11

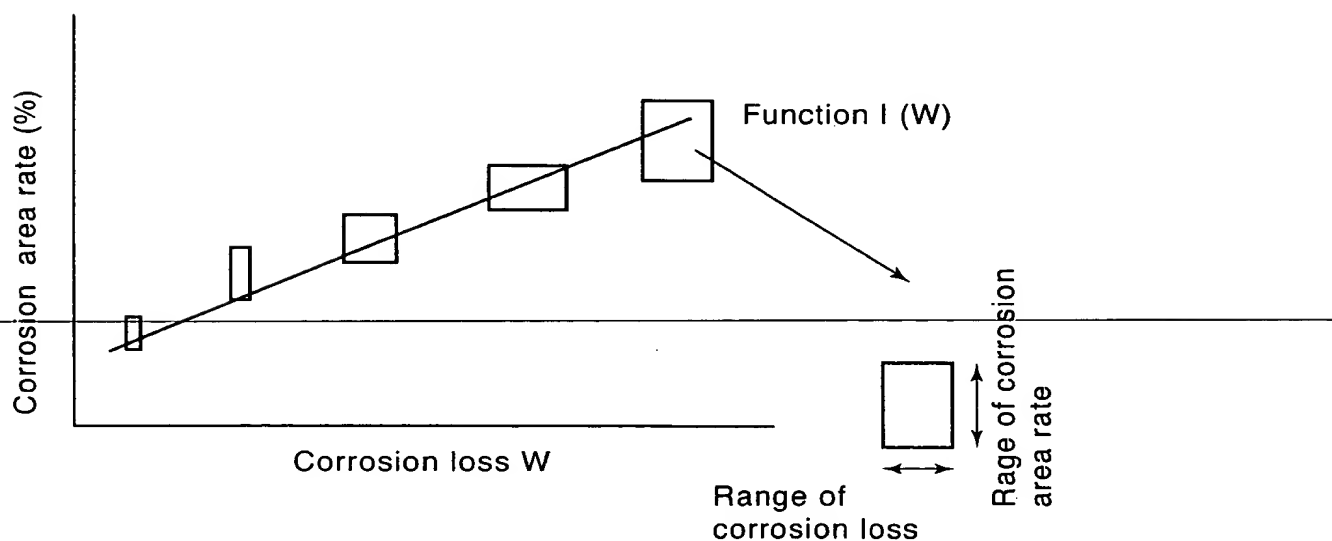


FIG.12

IC type	Year	Manufacturer	Sealing resin	Chip protective film	Other...	Correlation function(W)
IC1	1982	T Inc.	Epoxy blend---	PSG		$I_1(W)$
IC2	1979	N Inc.	Epoxy blend---	None		$I_2(W)$
IC3	1992	T Inc.	Epoxy blend---	SIN		$I_3(W)$
...	...	...	...	...	...	...

FIG.13



IC type	Year	Manufacturer	Sealing resin	Chip protective film	Other...	Change of time sequence of aluminium wiring corrosion area rate $U_i = h_i(t)$ Correlation function $F(u)$ of aluminium wiring corrosion area rate and faults
IC1	1982	T Inc.	Epoxy blend---	PSG		$U_1=m_1(t), F_1=n_1(u)$
IC2	1979	N Inc.	Epoxy blend---	None		$U_2=m_2(t), F_2=n_2(u)$
IC3	1992	H Inc.	polyimide blend---	SiN		$U_3=m_3(t), F_3=n_3(u)$
...	...	...	...	...	...	...

FIG.14

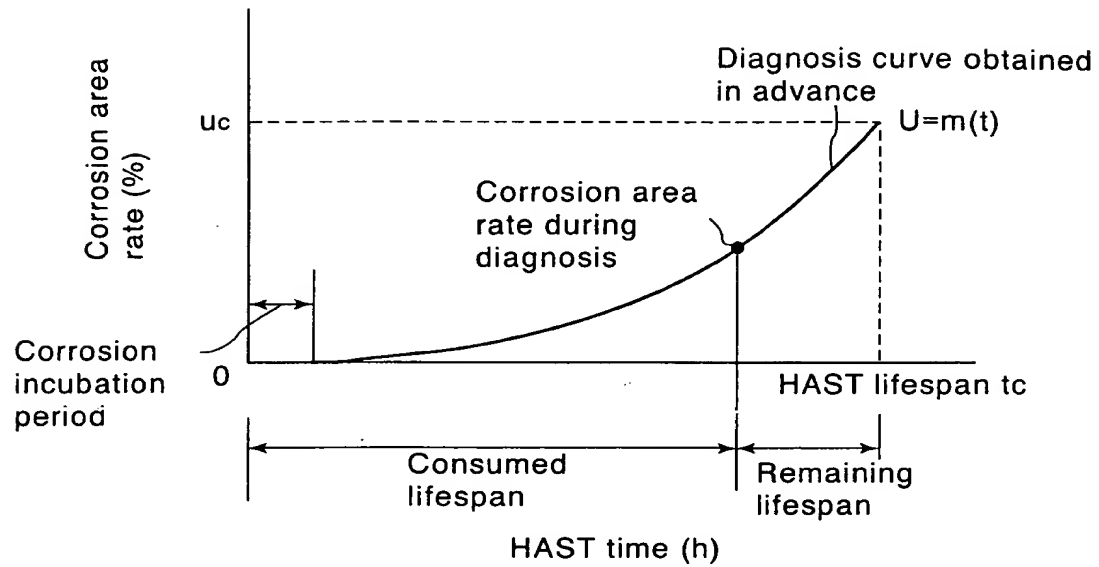


FIG.15

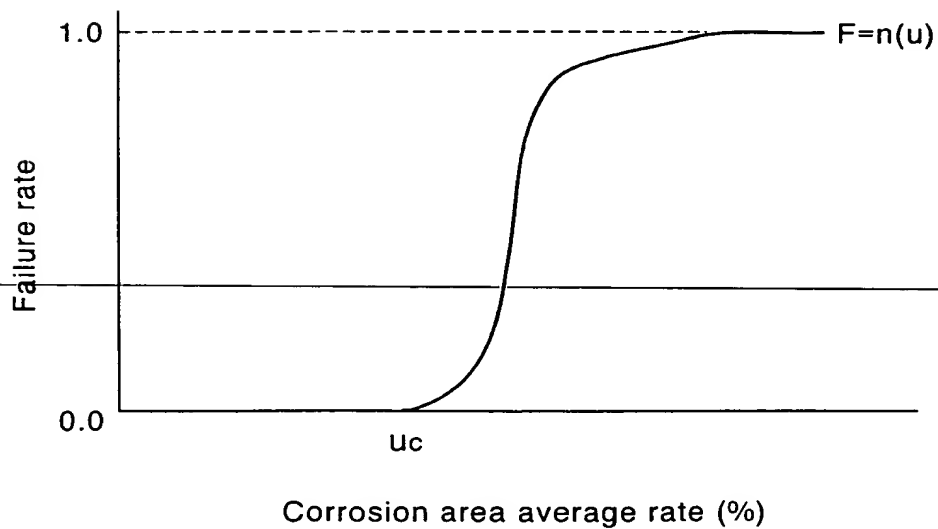


FIG.16

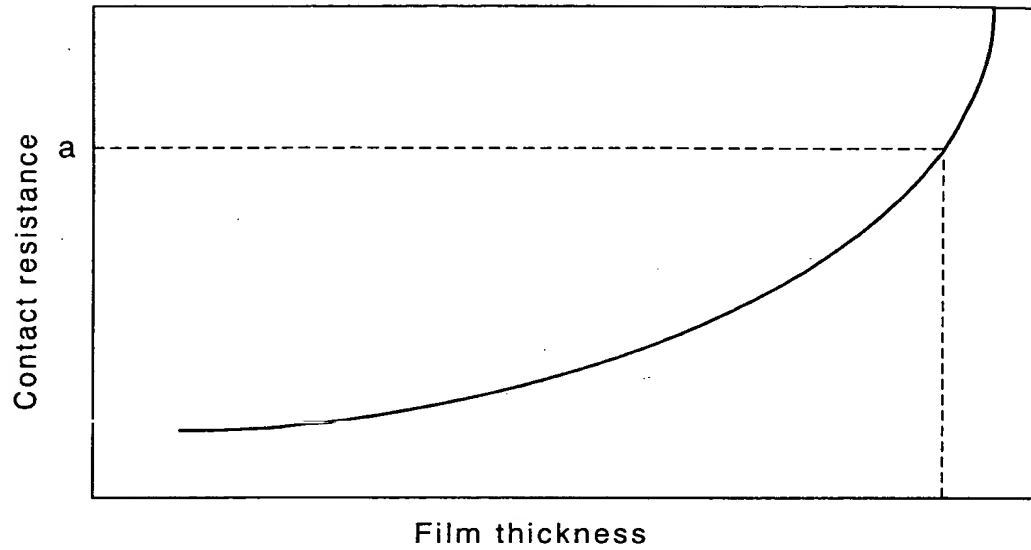


FIG.17

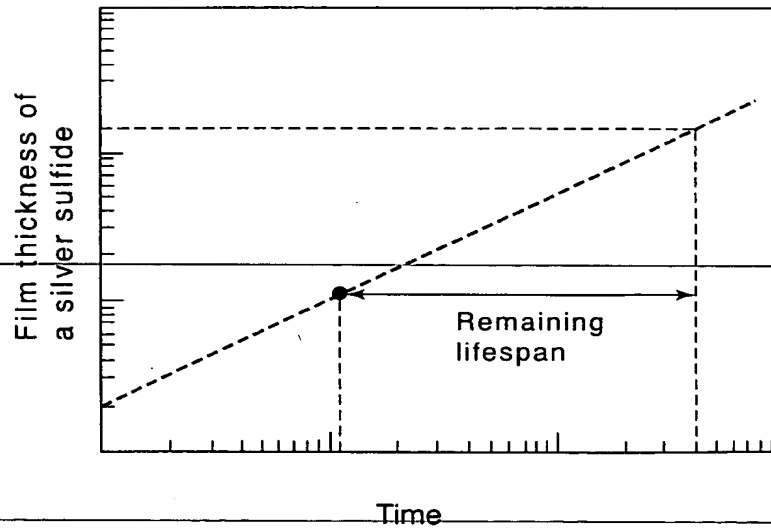


FIG.18

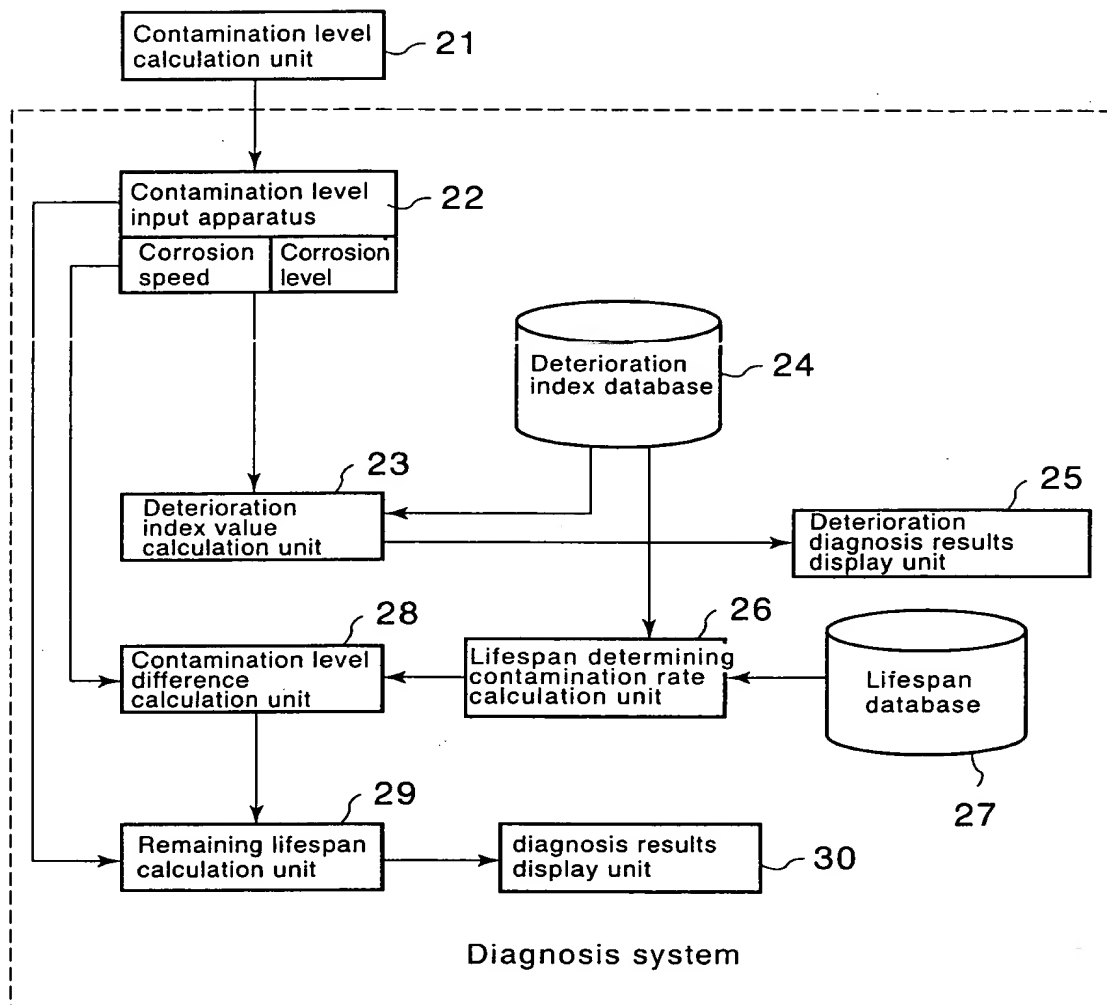


FIG.19

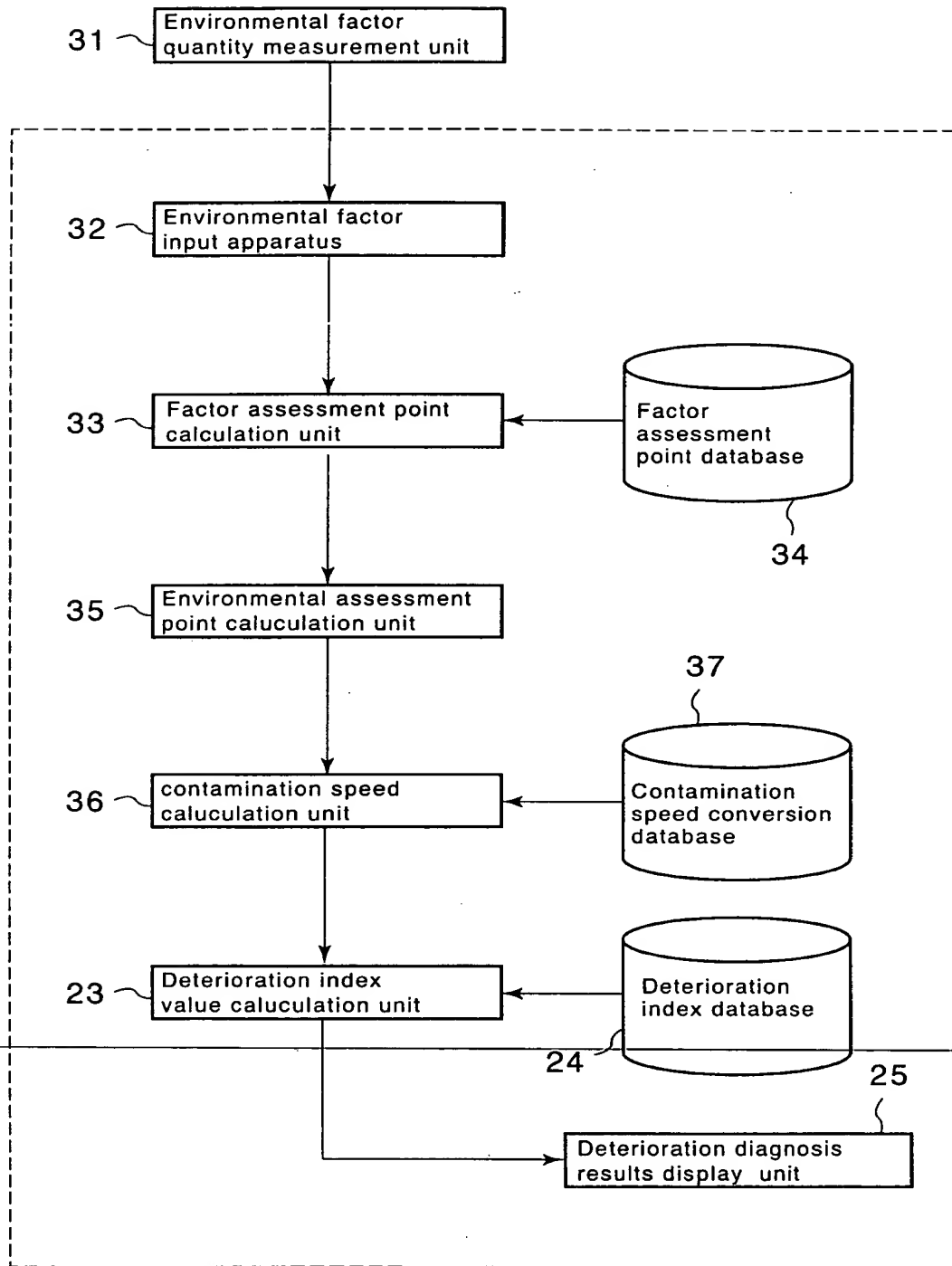


FIG.20

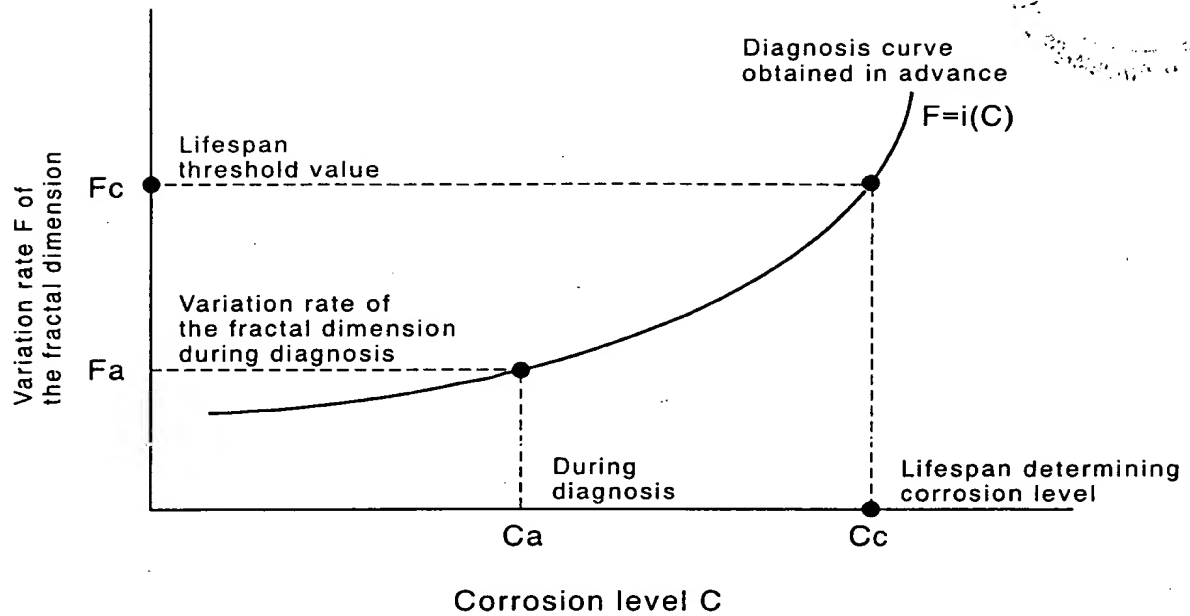


FIG. 21

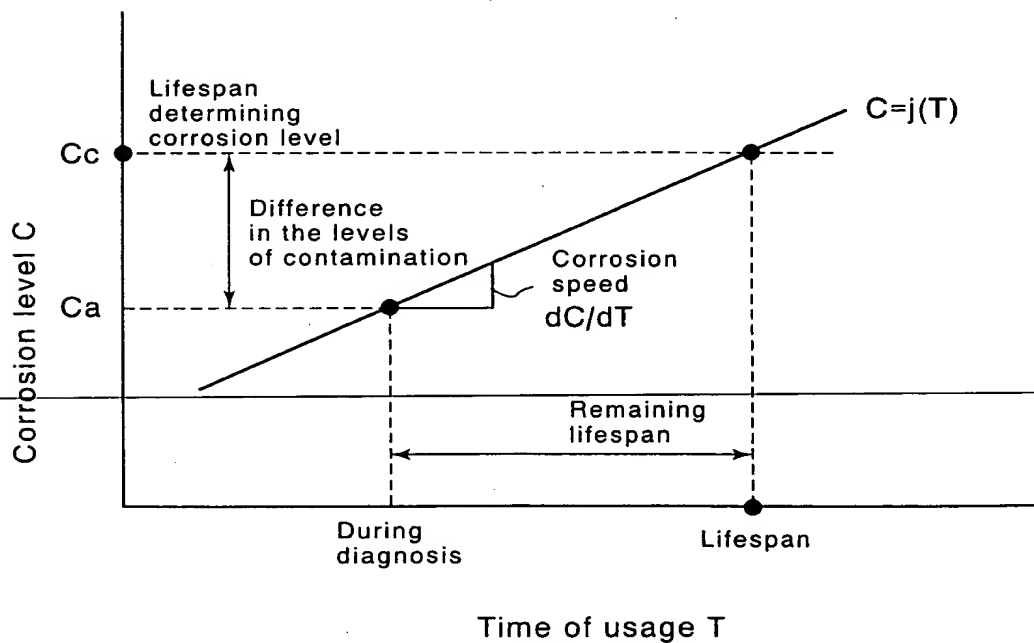


FIG. 22



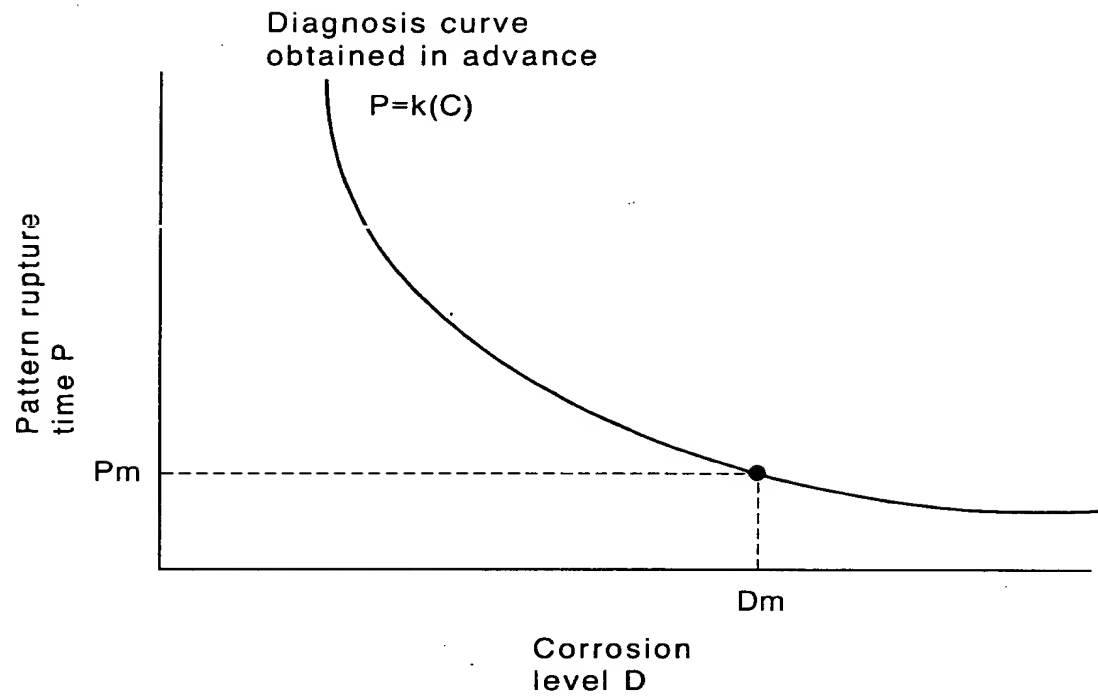


FIG.23

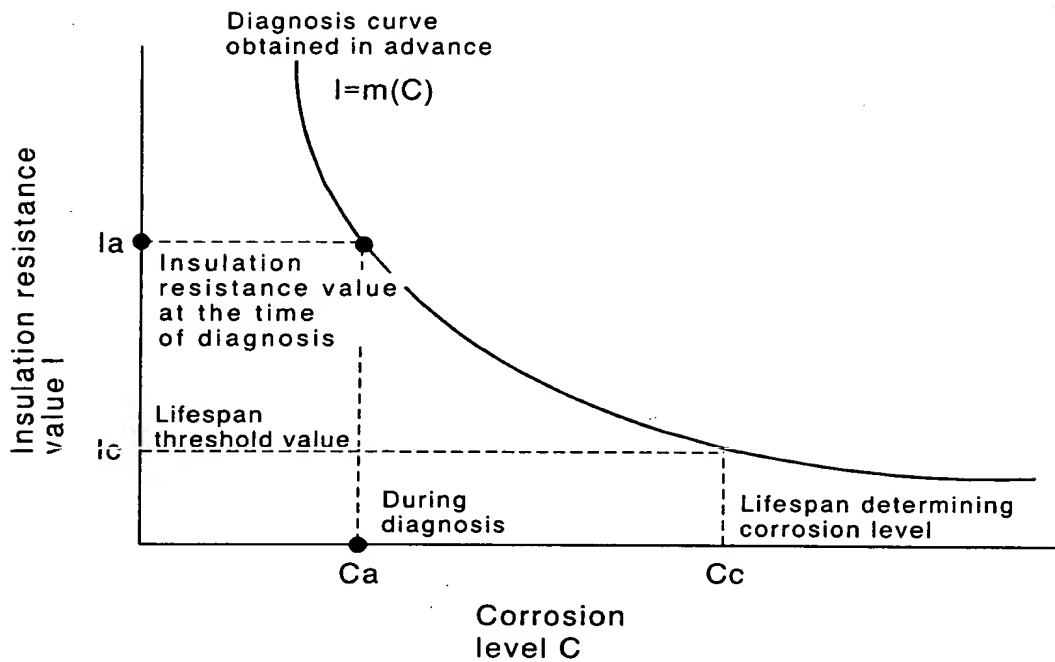


FIG. 24

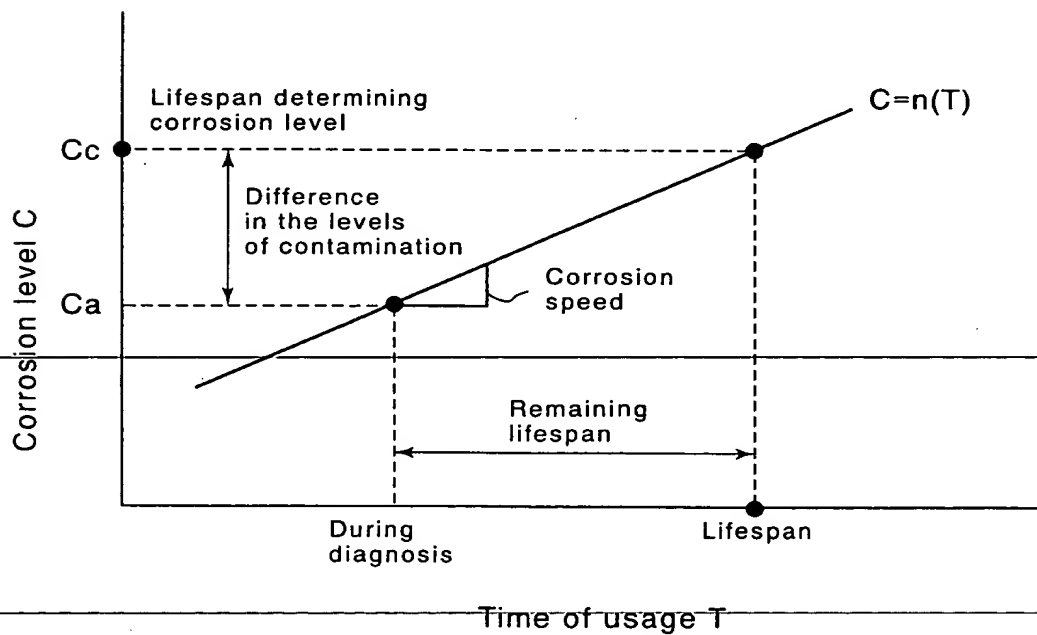


FIG. 25